

PROBLEMS OF TEACHER TRAINING ПРОБЛЕМИ ПІДГОТОВКИ ВЧИТЕЛЯ

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Trends in forming digital competence of future teachers in university education

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Abstract

The article examines current trends in the formation of digital competence among future teachers in the context of the digital transformation of education. The concept of digital competence is analyzed based on international and national standards, particularly DigCompEdu and the Standard of Pedagogical Education of Ukraine. Special attention is given to key components of digital competence, including the use of digital resources, interactive learning, assessment of student achievements in a digital environment, and the development of students' digital literacy. The study highlights the role of digital technologies in teacher training, focusing on the use of online courses (Coursera, EdX, Prometheus, Moodle), distance learning platforms, and adaptive learning systems. The integration of augmented and virtual reality into the learning process, the impact of artificial intelligence on personalized education, as well as the effectiveness of gamification and interactive methods in teacher preparation, are analyzed in detail. Key challenges in implementing digital technologies in higher pedagogical education are identified, including insufficient teacher training in digital tools, the absence of a unified methodology for assessing students' digital competence, technical and organizational barriers to the adoption of innovative technologies, and the psychological aspects of student adaptation to digital learning. The article outlines the prospects for the development of digital competence among future educators, emphasizing the importance of collaboration between universities, technology companies, and EdTech platforms. The study also explores the adaptation of international best practices, the development of innovative educational methodologies, and the projected growth of digital pedagogy. It is anticipated that the role of digital tools in the learning process will continue to expand, leading to the widespread adoption of innovative technologies to enhance education quality.

Keywords: digital competence, digitalization of education, online learning, adaptive learning, digital technologies, digital pedagogy, artificial intelligence, augmented reality, gamification, teacher training

Тенденції формування цифрової компетентності майбутніх вчителів в університетській освіті

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Анотація

У статті розглядаються сучасні тенденції формування цифрової компетентності майбутніх учителів в умовах цифрової трансформації освіти. Досліджено концепцію цифрової компетентності відповідно до міжнародних та національних стандартів, зокрема DigCompEdu та Стандарту педагогічної освіти України. Акцент зроблено на ключових складових цифрової компетентності, таких як використання цифрових ресурсів, інтерактивне навчання, оцінювання навчальних досягнень у цифровому середовищі та розвиток цифрової грамотності учнів. Проаналізовано роль цифрових технологій у професійній підготовці вчителів, включаючи використання онлайн-курсів (Coursera, EdX, Prometheus, Moodle), дистанційних платформ та адаптивних систем навчання. Особливу увагу приділено інтеграції доповненої та віртуальної реальності у навчальний процес, впливу штучного інтелекту на персоналізацію навчання, а також ефективності гейміфікації та інтерактивних методів у підготовці педагогів. Визначено основні проблеми впровадження цифрових технологій у систему вищої педагогічної освіти, серед яких недостатня підготовка викладачів до роботи з цифровими інструментами, відсутність єдиної методики оцінювання рівня цифрової компетентності студентів, технічні та організаційні обмеження впровадження інноваційних технологій, а також психологічні аспекти адаптації студентів до цифрового навчання. Окреслено перспективи розвитку цифрової компетентності майбутніх педагогів, зокрема необхідність співпраці університетів із технологічними компаніями та EdTech-платформами, адаптації міжнародного досвіду, розробки інноваційних освітніх методик. Прогнозується подальший розвиток цифрової педагогіки, зростання ролі цифрових інструментів у навчальному процесі та впровадження інноваційних технологій для підвищення якості освіти.

Ключові слова: цифрова компетентність, цифровізація освіти, онлайн-навчання, адаптивне навчання, цифрові технології, цифрова педагогіка, штучний інтелект, доповнена реальність, гейміфікація, підготовка вчителів

Statement of the problem. The modern educational space is undergoing a rapid digital transformation, which significantly affects all aspects of the educational process. The introduction of digital technologies changes not only teaching methods but also the competencies that a modern teacher needs for effective professional activity. In this regard, the formation of digital competence of future teachers is becoming one of the key tasks of pedagogical education.

Digital competence is defined as a set of knowledge, skills and abilities that allow an individual to effectively use digital technologies in

professional and everyday activities. It includes such components as information literacy, communication and collaboration in a digital environment, creation of digital content, security in cyberspace and solving technical problems. In the context of a teacher's professional activity, digital competence means the ability to use technologies to organize the educational process, assess students' academic achievements, create educational materials, and effectively manage classroom activities (Akimova et al., 2023).

The digitalization of education is also significantly changing approaches to training future

teachers in higher education institutions. Modern educational programs increasingly integrate digital literacy courses, distance learning methods, and the use of information and communication technologies in the educational process. An important role is played by the development of blended learning, which combines traditional classroom classes with distance technologies, allowing students to develop the necessary skills for working in a digital environment while still studying at university.

Analysis of recent research and publications. Digitalization of education is one of the key trends in modern pedagogy, which significantly changes the content, methods, and forms of education in higher education institutions. The formation of digital competence of future teachers is a necessary condition for their effective professional activity in the conditions of rapid development of information technologies. The introduction of digital tools into the educational process contributes to the individualization of learning, increasing student motivation, improving access to educational resources, and developing new forms of communication between teachers and students.

Studies of the educational and digital environment of universities in different countries of the world indicate the growing role of innovative technologies in the professional training of teachers. The scientific works of Antoshkova (n.d.), Akimova (2022), Bakhmat (2023), Dzvinchuk (2020), Radchenko (2020), Kachmar (2020), Myskiv (2020), Dolinska (2020) consider the use of digital platforms, in particular Canvas and Blackboard, the integration of artificial intelligence into adaptive learning systems, and the use of massive open online courses to expand access to education.

Despite significant progress in the implementation of digital technologies, a number of problems remain that require deeper study. In particular, the impact of digital technologies on the development of critical thinking of students, the issue of overcoming the digital divide, and ensuring cybersecurity in higher education institutions has not been sufficiently studied. Another important aspect is the development of effective methods for assessing the digital competence of future teachers and their adaptation to rapid changes in the field of educational technologies.

The purpose of the article is to analyze current trends in the formation of digital competence of future teachers in higher education institutions and

to identify key approaches, methods, and technologies that contribute to the development of teachers' digital skills.

Summary of the main material. The formation of digital competence of future teachers is a key task of modern university education, since the digitalization of the educational process requires teachers not only to master technologies but also to be able to effectively integrate them into teaching and learning. In this context, it is important to consider the theoretical foundations of a teacher's digital competence, in particular, to analyze its concept, structure, and regulatory frameworks defined by European and Ukrainian standards, such as the European Framework for the Digital Competence of Educators (DigCompEdu) and the Standard of Pedagogical Education of Ukraine.

A teacher's digital competence is defined as a set of knowledge, skills, and attitudes that allow for the effective use of digital technologies in professional activities. It covers a wide range of skills, from basic mastery of information and communication technologies to the ability to critically evaluate digital content, create their own educational resources, use adaptive learning technologies, and ensure a safe digital environment (Akimova et al., 2022).

According to the European framework for digital competence for teachers, DigCompEdu, digital competence consists of six main areas: Professional Engagement, Digital Resources, Teaching and Learning, Assessment, Empowering Learners, and Facilitating Learners' Digital Competence. This model provides for six levels of teacher competence - from beginner to leader in the field of digital pedagogy. In particular, DigCompEdu focuses not only on the technical aspects of working with digital tools but also on pedagogical strategies for their use, which contributes to improving the quality of the learning process and individualizing education (Yingfa, 2020).

In the Ukrainian context, the digital competence of a teacher is defined in the Standard of Pedagogical Education, which outlines the main requirements for the training of future teachers. It states that digital competence is a component of the general and professional competencies of a teacher and includes the ability to use modern digital technologies to create an educational environment, organize distance and blended learning, implement educational innovations, and form a digital culture

of students. Ukrainian regulatory documents emphasize the importance of developing critical thinking, cybersecurity, media literacy, and the use of digital tools for inclusive learning (Yingfa, 2020).

A comparative analysis of European and Ukrainian approaches to defining the digital competence of teachers indicates their conceptual unity and emphasis on the multidimensional nature of this phenomenon. In both cases, it is emphasized that digital competence is dynamic, constantly updated, and integrated into all aspects of pedagogical activity. However, the Ukrainian standard is more focused on providing basic digital skills and technical abilities, while DigCompEdu considers digital competence in the context of pedagogical mastery and innovative potential of the teacher.

Digital competence covers a wide range of skills that go beyond simple mastery of digital technologies, as it requires the ability to effectively integrate them into learning, provide innovative approaches to teaching, and critically evaluate and use digital content. Digital competence contributes not only to improving the quality of the educational process, but also to expanding the possibilities of individualizing learning, which is especially important in the context of multi-level groups of students and the implementation of inclusive education (Yingfa, 2020).

A modern teacher must be prepared to work with a wide range of digital tools, such as electronic educational platforms, interactive learning tools, distance learning technologies, and adaptive knowledge assessment systems. Possession of digital competence allows him to create his own educational resources, organize online lessons, apply gamification in the educational process, and use artificial intelligence to personalize the learning experience of students. In addition, ensuring cybersecurity and developing digital literacy among schoolchildren play a significant role, which is one of the key tasks of a modern teacher (Dzvinchuk, et al., 2020).

The digital transformation of education has caused profound changes in the system of pedagogical education, which requires updating educational programs, teaching methods, and approaches to the professional training of future teachers. Traditional learning models are gradually being supplemented by technologies of blended, distance, and personalized learning, which

necessitates the formation of relevant digital skills among students of pedagogical specialties. The training of future teachers now includes mastering digital platforms for learning, developing skills in creating multimedia content, implementing interactive teaching methods, and using cloud technologies to store and share educational materials (Dzvinchuk, et al., 2020).

One of the key trends in the digital transformation of teacher education is the introduction of massive open online courses (MOOCs), which provide access to high-quality educational resources and allow students to receive knowledge in a flexible format. Adaptive learning systems based on artificial intelligence are also becoming increasingly widespread, which allow adjusting educational content to the individual needs of each student. The use of such technologies contributes to increasing the efficiency of the educational process, as it provides the opportunity for independent mastery of the material and receiving feedback in real time (Lazarenko & Hapchuk, 2023).

Significant changes are also taking place in the system of assessing the professional training of future teachers. Traditional testing methods are gradually being supplemented by digital tools that allow for comprehensive diagnostics of the level of students' knowledge and skills. The use of electronic portfolios, automated tests, and analysis of students' learning activity through learning management platforms (LMS) allows for objective assessment and the formation of personalized educational trajectories (Lazarenko & Hapchuk, 2023).

Current trends in the formation of digital competence of future teachers reflect the global process of digital transformation of education, which includes the implementation of innovative educational technologies, the use of online resources for professional development, and the adaptation of the educational process to the individual needs of students. These processes contribute to increasing the effectiveness of pedagogical education, providing access to advanced methods and technologies that form competitive specialists in the field of education.

One of the key areas for the development of the digital competence of future teachers is the use of online courses and educational platforms that provide the opportunity for continuous professional growth. Resources such as Coursera, EdX,

Prometheus, and Moodle provide access to courses from leading universities in the world, providing educational materials on topical topics of digital pedagogy, educational process management, use of technologies in teaching, etc. Using such platforms allows future teachers not only to master new teaching methods but also to obtain certifications that increase their professional competitiveness. Particularly important are the possibilities of personalized learning, interactive tasks, and self-testing, which contribute to the effective assimilation of the material and reflection on their own progress.

An important component of digital transformation is the integration of augmented reality (AR) and virtual reality (VR) technologies into the educational process, which opens up new opportunities for modeling the educational environment and increasing student engagement. The use of AR and VR allows you to create virtual learning laboratories and implement practice-oriented methods that contribute to a deeper understanding of the educational material. In pedagogical education, these technologies can be used to simulate various educational situations, in particular in the fields of teaching methods, student psychology, and classroom management. For example, the Google Expeditions or CoSpaces Edu platforms allow students to immerse themselves in virtual lessons, observe pedagogical situations, and analyze the interaction of the teacher with students. This contributes to the development of professional skills and readiness to work in a modern educational environment enriched with digital technologies (Lazarenko & Hapchuk, 2023).

Another important aspect of the formation of digital competence is the use of artificial intelligence (AI) and adaptive learning, which contribute to the individualization of the educational process and increase its efficiency. AI-based systems analyze student behavior, adapt educational materials to their needs, provide instant feedback, and recommend optimal learning paths. The use of adaptive learning is particularly relevant in the training of future teachers, as it allows them to develop individual educational routes for students, adjusting educational content to their needs and level of training. Technologies such as personalized educational platforms (e.g., Smart Sparrow, Knewton, Century Tech) are used to train teachers, helping them develop curricula, assess students'

academic progress, and analyze their educational needs (Alenezi, 2023).

The formation of digital competence of future teachers takes place in the context of global changes in the educational environment, which are caused by the rapid development of digital technologies. One of the most promising areas for improving teacher training is gamification and interactive teaching methods, as well as the introduction of blended and distance learning. These approaches contribute to increasing student motivation, developing practical skills, and adapting to the use of digital tools in future professional activities.

Gamification, which involves the use of game elements in the educational process, is an effective way to increase student engagement and develop their digital competence. It involves the use of mechanics such as competition, a reward system, levels of difficulty, and personalized tasks that stimulate interest in learning. Gamified educational technologies can be implemented using interactive platforms such as Kahoot!, Quizizz, and Classcraft, which promote the active involvement of students in the educational process. In addition, the use of such tools allows future teachers not only to learn in a playful way but also to master the methods of implementing gamification in their own pedagogical activities. An important role is also played by elements of educational simulations, which allow students to practice pedagogical skills in a virtual environment, modeling various situations of interaction with students (Alenezi, 2023).

Interactive teaching methods also play a significant role in the formation of the digital competence of future teachers, as they contribute to the active interaction of students with digital technologies and develop their ability to apply innovative methods in the educational process. Interactive methods include project-based learning, case studies, and collaborative digital technologies. Using tools such as Padlet, Trello, Miro, and Google Jamboard helps students work on collaborative projects, organize group research, analyze information, and make collective decisions. This helps develop not only digital competence but also critical thinking, communication, and cooperation skills.

Blended learning, which combines traditional forms of teaching with digital technologies, has become a new reality in teacher education, opening up opportunities for a personalized and effective

learning process. This model involves the use of online courses, video lectures, and interactive tasks, which allows students to flexibly organize their own learning process, adjusting the pace and intensity of learning. Blended learning is implemented through the Moodle, Google Classroom, and Microsoft Teams learning platforms, which integrate synchronous and asynchronous learning formats. This approach is especially relevant for the training of future teachers, as it allows them not only to master digital technologies but also to master the methodology of organizing blended learning, which is becoming increasingly common in schools and other educational institutions (Smyrnova-Trybulska, et al., 2017).

Distance learning formats, which have received significant development in connection with the COVID-19 pandemic, have become an integral part of teacher education. They provide flexibility in the learning process, allowing students to receive knowledge regardless of their location, which is especially important for increasing the accessibility of higher education. Distance learning is based on the use of digital platforms for video lectures (Zoom, Google Meet, BigBlueButton), interactive resources for self-study of the material (Edmodo, Coursera, EdX), as well as tools for monitoring and evaluating learning outcomes (Google Forms, Quizlet, Socrative). The use of these technologies forms in future teachers the skills of working in an online environment, organizing distance lessons, and using digital tools to assess students' knowledge (Vasyliuk, et al., 2021).

Methodological aspects of forming the digital competence of future teachers are an important element in preparing teaching staff for work in the conditions of the digitalization of education. For the effective integration of digital technologies into the educational process, it is necessary to develop a set of methodological approaches that not only provide university students with the necessary theoretical knowledge but also contribute to the development of their practical skills in using modern digital tools. This requires flexible organization of the educational process and effective use of digital platforms and resources that meet the modern requirements of the educational environment (Moyle, et al., 2011).

One of the key aspects of organizing the educational process taking into account digital technologies is the integration of modern digital

platforms and tools that allow students to master not only theoretical material but also to practically apply the knowledge gained. Universities should create conditions for digital technologies to become an organic part of the educational environment. This involves not only the use of online courses and digital resources but also the transition to blended learning, which combines traditional forms of learning with digital tools. In the context of digitalization, it is important that teachers not only have skills in working with digital technologies but also be able to transform their teaching methods, creating conditions for students to work independently in an online environment. This includes creating interactive lectures, using video materials, online tests, and self-assessment tasks, as well as organizing remote consultations and seminars (Vasyliuk, et al., 2021).

Particularly important in the context of developing digital competence is the use of digital tools for active learning, which allow students not only to acquire knowledge but also to actively interact with the material, other students, and the teacher. Such tools include Google Classroom, Padlet, Canva, and Mentimeter. Google Classroom is a powerful tool for organizing the learning process online, providing opportunities for creating learning materials, distributing tasks, assessing results, and providing feedback. Using this platform allows students to work on tasks in an interactive format, view resources, and receive timely assessments and comments. This allows you to create an effective learning environment that supports student independence and promotes the development of their digital skills.

The formation of digital culture and ethical norms for working with digital resources is an important component of the professional training of future teachers in the context of the digital transformation of education. Modern teachers must not only have the skills to use digital technologies, but also understand the ethical aspects associated with their application in the educational process. Digital culture includes a set of knowledge, values, and norms that determine how digital technologies are integrated into everyday human life and affect interaction in society. It encompasses the ability to correctly use digital resources, adhering to ethical standards that include respect for copyright, data confidentiality, network security, and a responsible attitude to information (Anoshkova, n.d.).

To form a digital culture in future teachers, special attention should be paid to educating a responsible approach to the use of information technologies, understanding the risks associated with digital means of communication and data processing, as well as skills for safe work on the Internet. It is important that students not only learn to effectively use digital resources for their own educational purposes, but also be able to evaluate information, verify its reliability, and understand how it can be used in the pedagogical process. Adherence to ethical norms of work with digital resources also involves the development of critical thinking skills regarding digital media, the ability to navigate ethical dilemmas that may arise when using technology, in particular in the context of digital dishonest use of information or manipulation of data (Moyle, et al., 2011).

Taking into account ethical norms of working with digital resources is also important for the safety and protection of students in the digital environment. Teachers should not only teach their students to use digital tools correctly and ethically, but also create a safe digital environment where personal data is protected and the risk of cyberbullying is prevented. The formation of such a culture at the early stages of teacher education is the basis for the development of responsible citizens in a digital society, capable of conscious use of technology and protection of their rights in the digital space (Moyle, et al., 2011).

Project activities and research tasks in the digital environment are becoming important tools for the development of digital competence of future teachers. Project activities that actively use digital technologies allow students not only to acquire knowledge, but also to apply it in practice, working on real tasks and solving problems facing modern education. By using digital platforms such as Google Classroom, Padlet, or other collaborative tools, students can create collaborative projects, complete research assignments, and present their findings online. This allows them to develop teamwork, creative thinking, and effective communication skills in a digital environment (Anoshkova, n.d.; Slushny, et al., 2020).

Research activities in the digital environment open up new opportunities for students in the field of pedagogical sciences. The use of online databases, scientific journals, access to virtual laboratories, and interactive learning platforms allows students to

conduct in-depth research, develop the latest teaching methods, analyze digital trends in education, and implement innovative approaches in pedagogical practice. Thanks to this, they gain experience in scientific work, learn to critically evaluate information, and create their own research projects using modern digital tools (Kuzminska, et al., 2020).

The introduction of digital technologies in the education of future teachers faces a number of significant problems and challenges that require a systematic approach and a comprehensive solution. One of the main problems is the insufficient training of teachers in the use of digital tools. Many teachers do not have the necessary knowledge and skills to effectively integrate technologies into the educational process. This is especially relevant in the conditions of rapid changes in the technological environment, when new tools and platforms are constantly appearing on the market. The lack of proper training of teachers in the use of digital tools leads to the fact that they cannot properly ensure effective learning activities of students, which, in turn, reduces the quality of education and hinders the development of digital competencies of future teachers (Slushny, et al., 2020).

Another problem is the lack of a unified methodology for assessing the level of digital competence of students. Although numerous tools and platforms exist for self-assessment of knowledge and skills, the lack of standardized criteria for assessing digital competencies in higher education complicates the process of forming a holistic picture of the level of preparedness of students. This creates difficulties for teachers, as they need to adapt their own assessment methods to different aspects of digital technologies and provide students with an objective and accurate assessment of their achievements in this area. The lack of clear standards and criteria for assessment also creates uncertainty in determining the level of digital competence at the level of the entire education system, which complicates the development of this competence within educational programs (Slushny, et al., 2020).

Technical and organizational problems of introducing digital technologies into the educational process are also a significant barrier to the effective use of tools and platforms in pedagogical education. The lack of stable access to the Internet, the low quality of university technical support, and

educational facilities that are not sufficiently adapted to digital needs significantly limit the opportunities for integrating technology into the educational process. Many educational institutions do not have the necessary resources to ensure the proper functioning of digital tools, and students face difficulties in accessing the necessary equipment and software. In addition, there is a problem of the lack of proper technical support, which complicates the prompt resolution of problems that arise when using digital technologies. These organizational and technical limitations make the implementation of digital technologies in the educational process less effective and increase the likelihood of obstacles to achieving the desired results (Bakhmat, 2023).

The psychological aspects of students' adaptation to digital learning are also an important challenge. The transition to digital learning is a significant stressor for many students, as it requires the development of new skills in self-study and time management. Students often experience difficulties in mastering new digital tools, which can lead to a decrease in their motivation and emotional burnout. In addition, there is a problem of a lack of clear understanding and control over the learning process, as digital learning requires greater autonomy, which does not always correspond to the usual ways of learning in traditional settings. In addition, the lack of direct contact with the teacher and fellow students can affect the level of socialization of students and their perception of the learning process as a whole. All these psychological factors can cause difficulties in the process of adapting students to the digital environment, which negatively affects their learning experience and the development of digital competencies (Bakhmat, 2023).

The prospects for the development of the digital competence of future teachers in the face of constant changes in the field of technology and education provide significant potential for cooperation between universities, technology companies, and EdTech platforms. Such cooperation can become the basis for creating innovative educational environments that provide a high level of digital training for teachers. The involvement of technology companies and EdTech platforms in the educational process allows for the integration of modern digital tools and resources that greatly facilitate access to knowledge and educational materials. Platforms such as Coursera, EdX,

Moodle, or other specialized learning environments offer universities the opportunity to implement online courses, trainings, and other forms of learning that allow future teachers to obtain the necessary skills to work with digital technologies in real time. Cooperation with technology companies also contributes to the creation of innovative solutions for interactive learning, virtual classrooms, and simulations that allow for the improvement of the learning process and make it more effective. In addition, such interaction can become a catalyst for the development of new pedagogical approaches based on the use of advanced digital technologies (Guerrero, et al., 2020).

The introduction of international experience in teacher training is another important perspective for the development of digital competence. Given the globalization of education and the exchange of experience between different countries, it is important to introduce best practices and approaches from the international pedagogical community regarding the development of digital skills in teachers. Universities can adapt successful methods of digital teacher training used in other countries, such as the UK, the USA, or European countries, to their conditions. This includes the use of innovations such as online courses for teacher education, the development of programs and trainings focused on improving the digital literacy of teachers. International experience also allows you to expand the horizons of the professional development of teachers, introducing modern approaches to the use of technology in teaching. Initiatives aimed at creating international educational standards and digital competence standards for teachers are also important, which provides a unified approach to learning in the context of the digital transformation of education (Bakhmat, 2023).

The forecast for the development of digital pedagogy indicates that it will become an integral part of the future professional activities of teachers. Every year the role of digital technologies in the educational process is growing, and pedagogy itself is becoming more and more focused on the use of innovative technologies. The introduction of such tools as artificial intelligence, adaptive learning, virtual and augmented reality, and gamification will allow the creation of personalized learning programs that meet the individual needs of students.

This, in turn, will contribute to increasing the efficiency of the educational process and the development of critical thinking of students. For future teachers, this means that they need to possess not only basic digital skills but also be able to adapt these technologies to the specifics of a particular class or discipline. In the future, digital pedagogy will become not only a means of optimizing the educational process but also a powerful tool for the development of students, forming their skills for working in the digital world (Guerrero, et al., 2020).

The digital competence of future teachers is an important component of their professional training, and its development will determine the quality of the educational process in the future. Therefore, for the successful implementation of digital technologies in the educational process, it is necessary to ensure the continuous development of curricula, the creation of favorable conditions for teaching staff and students, as well as the integration of the latest technologies into everyday pedagogical practice. Taking into account all these factors, we can confidently say that the future of digital pedagogy opens up new horizons for the development of teaching and professional training of teachers.

Conclusions. The need to develop digital competence in future teachers indicates the need to integrate digital tools into the educational process and teacher training, as the ability to work with modern technologies is an important component of a teacher's professional activity. One of the main trends is the gradual change in the role of the teacher from a source of knowledge to a facilitator of the educational process, which involves the use of the latest digital resources and technologies to support individualization and personalization of learning. In this context, a special role is played by tools for distance learning, online courses, and

interactive platforms, as well as technologies such as virtual and augmented reality, which allow significantly expanding opportunities for learning and development. An important aspect is also the integration of technologies such as artificial intelligence and adaptive learning systems, which are able to provide individual recommendations for each student, which is important in the context of preparing future teachers to work with different categories of students. This requires teachers not only to be able to use digital technologies but also to understand their potential and effectively apply them to develop students' critical thinking, creativity, and analytical abilities.

Another important trend is blended learning, which combines traditional forms of learning with the latest digital approaches. This allows for greater flexibility in the learning process, improved accessibility to resources, and increased learning efficiency. However, for the successful implementation of blended learning, the right combination of online and offline forms of learning is important, which requires teachers not only to master digital tools but also to be able to organize the learning process in such a way that students receive an effective and comprehensive experience.

Thus, among the main trends that determine the formation of the digital competence of future teachers, we can single out the need to create conditions for the development of digital literacy, adaptation to new technologies, and integration of innovative approaches into the learning process, as well as the importance of cooperation with technology companies and international educational platforms. Training teachers in such conditions should become a priority for universities because a high level of digital competence of teachers allows for high-quality teaching that meets the requirements of the modern digital era.

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